

R E M A R K S

Reconsideration of the above-identified patent application is respectfully requested in view of the foregoing amendments and the following remarks. Claims 1, 3, 5, and 21 have been amended. Claims 1 - 27 remain in the case.

The claims of the instant application are drawn to a method for utilizing a miniature, unmanned, remotely guided aircraft weighing less than fifty-five pounds to obtain aerial images of an agricultural field. Aircraft meeting this weight requirement are currently exempt from many regulations governing aircraft weighing more than fifty-five pounds. In addition, the use of such an aircraft provides numerous other logistical and operational advantages enumerated in the instant specification.

Claims 1, 2, and 17 were rejected under 35 U.S.C. §102(e) as being anticipated by United States Patent No. 6,529,615 for METHOD OF DETERMINING AND TREATING THE HEALTH OF A CROP, issued March 4, 2003 to Larry I. Hendrickson et al. HENDRICKSON et al. disclose a system for utilizing imagery acquired from a variety of different platforms including "from a land vehicle,

airplane, helicopter, pilotless drone, satellite, etc." (Column 11, lines 26 - 28). Nowhere do HENDRICKSON et al. teach or suggest the specifics of Applicant's aerial image acquisition platform, specifically a miniature, unmanned aircraft weighing less than fifty-five pounds.

It will be recognized that imagery acquired from satellite, helicopter, or conventional aircraft is typically expensive and the owner of a field to be analyzed and treated in accordance with Applicant's claimed method is at the mercy of the owner/operator of such aircraft or, in the case of satellite imagery, may be forced to deal with a bureaucratic organization to get appropriate imagery. Such satellite imagery may be days or weeks old and, as the data ages, its value to the field owner diminishes. Applicant's image acquisitions platform may be shipped overnight by common carrier air freight services such as Federal Express, or the like. Data (i.e., imagery) is available in "real time" (i.e., within minutes of the aircraft's flight over a field of interest. The cost of such a miniature aircraft is anticipated to be small enough that even a small farming concern could own their own and be totally self-sufficient for meeting their data acquisition needs.

Likewise, HENDRICKSON et al. neither teach nor suggest imaging apparatus suitable for any purpose other than analyzing green mass. Much of HENDRICKSON et al.'s teaching is directed to methods for differentiating pixels of soil from pixels of foliage. Throughout their specification, the common teaching is that of image conversion to a "greenness map." Also, the primary thrust of HENDRICKSON et al. is directed toward nitrogen stress in the foliage being analyzed and the remediation is almost exclusively limited to the application of nitrogen-based fertilizer.

Applicant's process creates no "greenness map" or any other output similar thereto. Rather Applicant's method uses data from a wider range of data acquisition sources such as thermal (e.g., infrared) image acquisition apparatus, synthetic aperture radar, and laser radar, etc. in addition to visible light images to determine many widely-ranging conditions in a particular field.

Applicant's claimed method of "conducting an agricultural operation" covers a much wider range of possibilities than the controlled application of a nitrogen-based fertilizer taught by HENDRICKSON et al.

Claim 1 has been amended to more particularly recite the aforementioned details of the aircraft and the image acquisition apparatus. As amended, claim 1 is believed to now clearly define over HENDRICKSON et al.

Because of the amendment of claim 1, claims 2 and 17 now merely recite additional limitations to a now-allowable claim 1. Consequently, claims 2 and 17 are now also believed allowable over HENDRICKSON et al.

Claims 3 - 7, 12 - 14, 18, and 22 - 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over HENDRICKSON et al. To reject claims 3 - 7, 12 - 14, 18 and 22 - 27, all dependent upon claim 1, the Office must first present a prima facie rejection of claim 1 as being obvious over HENDRICKSON et al. There is simply no suggestion in HENDRICKSON et al. that would lead a person of average skill in the art to arrive at Applicant's solution. HENDRICKSON et al. give passing inference to a "pilotless drone" but no other teaching suggests the light weight (i.e., under fifty-five pounds) platform taught by Applicant. The advantages of Applicant's solution were not even on the wish list of HENDRICKSON et al. as stated in their proposed object of the invention. There is a great leap required to move from a "pilotless drone" to the specific aircraft recited in the instant claims, a great leap made

through keen insights into the problem of providing low cost aerial imagery by Applicant.

Likewise, HENDRICKSON et al. focus their attention on a greenness map and nitrogen remediation while Applicant's vision is much wider.

With regard to claim 13, the cost of duplicating Applicant's method using the conventional aircraft, helicopters or satellites taught by HENDRICKSON et al. is already high, perhaps prohibitively high for many farmers to avail themselves of the approach. It seems ridiculous to at least double the expense using the aforementioned prior art methods. On the other hand, using Applicant's inventive platforms in pairs or even in greater numbers might well be cost-effective.

Based on the assumption that claim 1 is non-obvious over HENDRICKSON et al., the claims 3 - 7, 12 - 14, 18, and 22 - 27 all recite additional limitation to allowable independent claim 1 and are likewise now believed to be allowable.

Claims 8 - 11, 15, 16, and 19 - 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over HENDRICKSON et al. in view of United States Patent No. 5,467,271 for MAPPING AND ANALYSIS SYSTEM FOR PRECISION FARMING APPLICATIONS, issued

November 14, 1995 to Robert J. Abel et al. ABEL et al. teach a greatly detailed method for mapping and analyzing images but are silent regarding detail of an airborne platform.

Consequently, adding the teaching of ABEL et al. to that of HENDRICKSON et al. fails to suggest and thus obviate Applicant's unique airborne platform (i.e., the under fifty-five pound, remotely guided miniature aircraft). Applicant maintains that as claim 1 is now deemed allowable, the recitation of additional limitations recited in claims depending therefrom are merely that - additional limitations to an already allowable claim. Consequently, Applicant believes that the amendment of claim 1 overcomes the rejection of claims 8 - 11, 15, 16, and 19 - 21 under 35 U.S.C. §103(a) as being unpatentable over HENDRICKSON et al. in view of ABEL et al.

Claims 3 - 5 and 21 were rejected under 35 U.S.C. §112, second paragraph, for failing to particularly point out and distinctly claim the subject matter Applicant considers to be the invention. At issue is the use of the adjective "its" to refer to the noun aircraft. As the word "aircraft" is the only noun in the body of the claim to which the adjective could possibly refer, Applicant fails to find any ambiguity whatsoever in the claim construction of the submitted versions of these claims. The Applicant respectfully considers the

rejection ridiculous.

Nonetheless, to foster a spirit of cooperation and to further prosecution of the case, the claims have all been amended. Claim 4 appears to Applicant to have been rejected in error as the adjective "its" does not appear therein. Consequently, Applicant has interpreted the rejection to apply to claims 3, 5, and 21. The amendments thereto are believed to overcome their rejection under 35 U.S.C. §112, second paragraph.

Claims 1 - 27 are now believed to be in condition for allowance and Applicant respectfully requests that they be allowed and the application be passed to issue.

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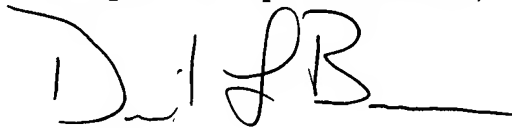
Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

on September 25, 2003

(Date of Deposit)

Date

Respectfully submitted,



David L. Banner  
Reg. No. 39,898  
Agent for Applicant  
SALZMAN & LEVY  
Press Building - Suite 902  
19 Chenango Street  
Binghamton, New York 13901

Telephone: (607) 722-6600